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Editor
CHARLES H. KEENE, M.D.
University of Buffalo, Buffalo, N. Y.

Assistant Editor
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Vol. XX NOVEMBER, 1950 No. 9

BCG*

ROBERT J. ANDERSON, M.D.
and
CARROLL E. PALMER, M.D.
WASHINGTON, D. C.

Tuberculosis has become somewhat of an emergency in many areas of the world, particularly in those countries directly affected by World War II. A multitude of shortages has made it impossible to employ the usual tuberculosis control measures. As a result, a simple procedure like BCG vaccination has a strong appeal, and that appeal grows stronger each day that the harmlessness of the vaccine is reiterated. The adoption of BCG vaccination programs under those conditions is understandable, and it is also understandable that similar appeal should be felt in those areas which, although not devastated by war, have been forced to view their tuberculosis problem with a certain resignation, if not hopelessness. It appears that these circumstances, rather than any recent demonstration of the vaccine's value in the prevention of tuberculosis, have given rise to the vast worldwide BCG programs now under way.

"Nature of the Vaccine,"—It must be recognized and admitted however, that we have a woefully incomplete knowledge of just what it is that is being used as BCG. The vaccine is defined as a suspension of living tubercle bacilli derived from a bovine strain which has been attenuated to the point where it is unable to produce progressive disease. To that rather vague definition several decades of study have made but little factual addition to our knowledge of the actual character of the vaccine. If we may judge from published reports, even the most cursory examination of the problem reveals a wide discrepancy between the progress of concrete knowledge about BCG on one hand and the evolution of vaccination programs and the creation of policy and legislation on the other.

The questions which still exist are by no means trivial, nor are they limited to the realm of theoretic consideration. Bacteri-

* Abstracted from the Journ. A.M.A. July 22, 1950. p. 1048 by CHK.

ologists have pointed out that there is little uniformity in the number of viable organisms in the several vaccines now being produced, as well as in different lots of the same vaccine. Moreover, there is little knowledge as to how many are viable at any given time, and the significance of the non-viable organisms remains problematic. Still less is known about the number or proportion of viable organisms required in the injected dose.

There are competent experts who go so far as to maintain that BCG is too variable in potency even to warrant trial in human beings. At the same time, there are those who consider that BCG is the answer to the whole tuberculosis problem. The Public Health Service is going forward with its investigations in the belief that products actually being used, although not yet standarized, should be tested and compared to determine what standardization is desirable. This last problem alone is the subject of extensive studies being conducted by the Public Health Service among 20,000 persons. Three American and two European products are being compared in these studies.

Even the life of the vaccine is a matter of conjecture, and at the present time the recommendations of producers vary from five to fourteen days. At all events, if liquid BCG vaccine were licensed today it would by the most unstable vaccine so licensed in the United States, and it seems appropriate to mention that there is always the possibility that the reputation of all BCG vaccines will suffer because of the inadequacies of individual batches.

"Tuberculin Test Evalution,"—Looking next to the indications for use, we are at once confronted by the enigma of the tuberculin test, which provides the basis for selection of those persons eligible for vaccination. Indeed, the variations in antigen used, in dosage and in interpretation, undoubtedly produce wide discrepancies in selection of eligible persons. They may account, too, for the many discrepancies in the ultimate observations as to the effect of the vaccine in converting persons from nonreactors to reactors, which is the only criterion we have for measuring the success of vaccination. These factors certainly affect the comparability of the results reported by different workers.

Consider the change in criteria for eligibility for vaccination that has occurred in the past two years. Almost arbitrarily the tuberculin dosage employed in the prevaccination test in the European BCG program has been reduced tenfold. General agreement to proceed similarly in this country was reached in an equally arbitrary way at the meeting of the Public Health Service BCG

advisory group in March, 1948. It is symptomatic of the general uncertainty about the utility of BCG that these changes were made on the basis of little evidence as to their favorable or unfavorable effects. Persons are now being vaccinated who only a few years ago would have been turned away and told that they had a naturally acquired immunity.

Three years ago we conducted a vaccination program among school children in a southern community. The tuberculin criteria in use at that time found 64 per cent of the children ineligible for vaccination, whereas the current criteria would have found less than 15 per cent ineligible. It is obvious that we do not know whether the many additional children would have benefitted from vaccination. The important point is that little is known as to what the appropriate tuberculin criteria are for selecting persons for vaccination.

Furthermore, one should know not only who can benefit but also who can be vaccinated without excessive adverse reaction.

"Duration of Immunity,"—The sensitivity induced by BCG vaccination is usually not like that which is attributed to natural infection. Lower tuberculin dosages fail to detect sensitivity in a substantial proportion of vaccinated patients, and the reactions among those given the larger dose of tuberculin are ill defined in many instances. It appears that one has to employ the most liberal criteria for what constitutes a definite reaction in order to report much above 90 per cent conversions from BCG vaccination.

When we use the commonly employed 5mm, of induration as a criterion, we have frequently obtained much less than 90 per cent conversions, in contrast with the greater conversions reported by others, which sometimes are as much as 98 or 99 per cent. In comparing our observations with those of other American workers it is possible that our use of 0.002 instead of 0.005 mg. purified protein derivative, with readings made at seventy-two hours instead of forty-eight, may account in part for some of the discrepancy. The disagreement between our results and those reported by some European workers must arise completely from other causes, however, since our technical procedures were identical with those used in Europe.

We had some doubt concerning the comparability of our own tuberculin test interpretations and those of other workers. Therefore we conducted comparative reading programs between members of our staff and three BCG experts. We found that one visiting reader reported more reactions, one about the same number,

and one some fewer than our readers, when observing the same group of persons. Thus, in the circumstances of this trial we were not able to explain, by this means, the discrepancies between our tuberculin results and those reported by others.

It seems that whether or not the experts agree on what is a reactor or what is the proper dosage of tuberculin, there remains a tremendous research problem to assess the meaning of the reactions of all degrees in terms of immunity. It is remarkable that little has been published on this subject despite the vast amount of BCG work that has been done.

Another aspect of BCG administration that troubles us is an apparent discrepancy about the continued effect of the vaccine. It has been said that this is evidenced by a persistence in the acquired tuberculin allergy. There is good evidence that the degree of allergy produced can wane rapidly. Consider the current experience in one of our community programs, where a preliminary sample of children tested both at six months and three years after multiple puncture vaccination show that prevalence of sensitivity to 0.0001 mg. purified protein derivative has dropped from 43 per cent to only 12 per cent. Among those who did react six months after vaccination, less than one-fourth still react three years later. There is more than twice as much persistence of the allergy among the Negro children as among the white.

In view of the attitude toward BCG vaccination which has been maintained in this country for so many years, it appears that we have something of an obligation to answer our own questions and to prove, before it is too late, just what this vaccine could do in our population. We have before us examples in at least two countries where BCG vaccination has been carried on for many years, yet where no scientifically reliable data can now be obtained as to what part BCG vaccination has played in the history of tuberculosis in the country as a whole.

We cannot give unqualified credence to the belief that a general or decided decline in tuberculosis morbidity and mortality in France or Denmark or any other country where BCG has been used constitutes evidence that BCG vaccination was effective. Consider the precipitous decline in tuberculosis mortality in Iceland from 1930 to 1945 without the use of BCG, which was reported by Sigurdsson and Hjaltested in *Public Health Records* several years ago. The death rate fell from more than 200 per 100,000 to less than 70 per 100,000 in fifteen years. A personal communication from Dr. Sigurdsson indicates that the rate has dropped further

to 34 per 100,000 in 1948. If a broad usage of BCG vaccination had been instituted at the beginning or during those fifteen years, there would be many who would cite the decline in mortality as unassailable evidence of the value of BCG. The Iceland experience, as well as many in this country, demonstrates that currently accepted methods of tuberculosis control should be prosecuted vigorously in all areas where there is an impulse to substitute BCG vaccination therefor.

"Summary and Conclusion,"—We feel that mass vaccination programs are warranted only for carefully documented evaluation studies. Otherwise, the most that can be suggested at this time is its use in selected groups in which known exposure exists.

* * * * *

Antihistaminic Drugs and the Common Cold,—The leading article in the British Medical Journal of August 19, 1950, states that the common cold has again come unscathed through an ineffective therapeutic attack. They were referring to two series of clinical trials, one by a special committee of the Medical Research Council, also published in the issue of August 19th, in which, a small but carefully controlled experiment of two antihistaminic drugs, hydrochloride chlorocyclizine (**dl**-1- [p-chlorobenzhydry] -4-methyl-piperazine monohydrochloride) and promethazine hydrochloride (N- [2′-dimethylamino-n-propyl] phenothiazine hydrochloride. There was no evidence of their having any value in the prevention of experimentally induced colds. Large scale clinical trial of thonzylamine hydrochloride in widely separated areas in Great Britain and Northern Ireland carried out between the middle of March and the middle of May, 1950, showed that the dosage employed had little, if any, value in the treatment of the common cold.

Reports of trials of antazoline (antistine*) hydrochloride against the common cold also appeared in the same issue, by Dr. Gerard Lorriman, medical adviser to Ciba Laboratories, Ltd., Horsham, and W. J. Martin, from the Medical Research Council's Statistical Research Unit. The investigators also conclude that after large scale trial this drug failed to show any effect on the course of the common cold. Journal A.M.A., Oct. 14, 1950.

MORE PROTECTION FOR HIGH SCHOOL ATHLETES!

CHARLES G. DESHAW

Director of Health, Physical Education and Recreation, New Jersey State Teacher's College, Montclair, N. J.

The need for more adequate and uniform regulations for control of athletic competition is evident. *Firstly,* the expansion of the athletic program whereby each year more youth will participate makes it essential that greater protection be furnished.

Secondly, is the difference in training and experience of coaches. Administrators, because of budget limitations and other items, are sometimes restricted to the use of inexperienced physical-education teachers or personnel with little or no physical-education background. They either lack coaching experience or are not familiar with the objectives of athletics, a knowledge of anatomy, physiology, safety procedures, and coaching methods.

A *third* and significant factor emphasizing the need of more controls is the tradition and pride of communities. In the attempt to compile winning records for prestige, advertising, or ego, they have placed coaches under stresses that interfered with their more rational judgment. Again, communities have attempted to sponsor teams in hazardous sports with substandard leaders, little financial aid, or inadequate manpower.

The irony in this situation is that better equipped teams play poorer equipped ones although players are subject to the same type of injuries. With the increased means of travel, teams may compete in interstate or even intersectional games. It is logical that more adequate controls be uniform throughout the nation. Health and safety are not factors confined to one section of a state or nation.

Additional types of control for state or national groups to consider for adoption may be grouped in four categories: *administrative, program, player, and equipment and facility.* They are set in the following manner for purposes of examination:

Administrative Policy Controls,—(1) The school shall finance the program of varsity athletics and shall designate it as part of the physical-education program. (2) The schools shall have a regularly appointed school medical doctor, who shall pass on the condition of the participant. He shall be the final judge of the player's fitness to compete in the sport. (3) The school shall provide a sufficient number of adequately trained coaches to insure sufficient supervision during the practice sessions and games. (4)

The school shall have a formulated policy regarding financial responsibility for injury received in athletics, and shall make this policy known to parents and participants. (5) The school shall have a doctor in attendance at football games, and on call for football practices. (6) The school shall provide transportation to and from games away from the locality. (7) The school shall permit only faculty members with at least a minor in physical education to act as head coaches of hazardous sports. All coaches shall have training in first aid in injuries common to athletics. (8) The school shall schedule games with secondary schools only, and in hazardous sports compete against only those of comparable size. (9) The school shall provide the opportunity for varsity competitors to secure accident insurance.

Program Controls,—(1) The school shall require its coaches to include safety instructions in the sport being supervised. (2) The school shall require an adequate number of practice periods immediately preceding the first interscholastic game. A suggested number for most team sports is 15. Baseball could be limited to 10. (3) The school shall limit the playing season to each sport. Suggested limits for each sport are indicated.

Football	8 games
Basketball	15 games
Baseball	12 games
Wrestling	8 games
Soccer	9 games
Lacrosse	8 games
Hockey	12 games
Track	9 games
Swimming	8 games

(4) The school shall limit the number of events a student may enter in one meet or match. Suggested limits for each sport are indicated.

Wrestling	1 event
*Boxing	1 event
Swimming	2 events and relay
Track	2 events and relay
Tennis	2 events
Golf	2 events

(5) The school shall limit the number of games played in each sport during the span of a week. Suggested limits for each sport are indicated.

* There is grave doubt that any interscholastic competition in boxing should be permitted. C. H. K.

Football	1 game
Basketball	2 games
Baseball	2 games
Wrestling	1 meet
Soccer	1 game
Lacrosse	1 game
Hockey	1 game
Track	1 meet
Swimming	1 meet

(6) The school shall limit the length of the practice period. A suggested maximum time for a practice session is two hours. (7) The school shall permit activities in a varsity sport only during the time required for preseason practice and the schedule of games. (8) The school shall permit no games before or after the opening and closing of the school year. (9) The school shall permit its varsity teams to enter only tournaments sanctioned by school officials. (10) The school shall limit the length of the cross country run. A suggested length is two miles (maximum distance.)

Player Controls.—(1) The school shall permit the student to engage in not more than one sport in a seasonal span. (2) The school shall permit a student to participate in a varsity sport until the student reaches the nineteenth year. (3) The school shall limit the number of sports a student may participate in during a school year. A suggested number is three. (4) The school shall permit no student to participate in varsity sports until he has reached a certain grade level. A suggested grade for this purpose is the ninth.

Equipment and Facility Controls.—(1) The school shall see that playing surfaces used for varsity sports are laid out so that players and spectators are separated by sufficient space to ensure the safety of both groups. (2) The school shall see that all playing surfaces used for its varsity sports are kept free of material or obstacles that would lead to unnecessary injury on the part of the participant. (3) The school shall see that all surfaces and permanent obstacles offering a possibility of injury to the participant are properly padded. (4) The school shall inspect its facilities before each sport's season begins in order to see that they meet standards accepted by recognized authorities in safety. (5) The school shall provide sufficient and properly fitted personal equipment for the adequate protection of each participant in a hazardous sport for all practices and games. Standards for personal

equipment have been developed by nationally recognized coaches in cooperation with manufacturers, and are followed out in first quality merchandise. (6) The school shall see that all playing surfaces used for varsity sports are adequately lighted according to standards established by recognized authorities, and are also properly ventilated.

Steps for Adequate Protection.—The welfare of the participant in interscholastic athletics is in a large way in the hands of the school administrator and the coach of the sport. If the educational philosophies of these two persons are in keeping with modern thinking in education, the health and safety of the player may be adequately protected.

The establishment of adequate uniform controls will make certain that the athlete receives more protection where local pressure, lack of educational philosophy, or other factors prevent it. The school will then be more able to justify its program to parents and the community. The school can then make more justifiable demands on the public for greater interest and financial support for the work it is doing.

Abstracted from Journ. Health, Phys. Ed. and Recreation. Sept., 1950. p. 34.

* * * * *

"Greeting His Pupils, the master asked.

What would you learn of me? and the reply came:

How shall we care for our bodies?

How shall we rear our children?

How shall we work together?

How shall we live with our fellowmen?

How shall we play?

For what ends shall we live?

And the teacher pondered these words, and sorrow was in his heart, for his own learning touched not these things."

Still true folks?

"BLANKET" HEALTH EDUCATION TESTS UNSATISFACTORY

WILLIARD WALTER PATTY
School of Health, Physical Education and Recreation
Indiana University

Unfortunately, perhaps, all of the known commercially published health education tests for elementary school children include several grades—3-8, 4-8, etc.—in one test. Use of such "blanket tests" results in undesirable problems for the teacher who attempts to use them for comparative or for diagnostic purposes in the grade which she teaches because of their low validity and reliability for a particular grade.

Characteristics reducing validity. It seems obvious that a "blanket test" testing six grades of health education outcomes cannot possess a high level of validity for any one of these grades. Presumably such a test would be developed so that approximately one-sixth of the questions would pertain to outcome hoped for in each grade. A third grade pupil taking such a test would be expected to read and answer all of the question of the test. For such a child *approximately five-sixths of the questions would be invalid since they deal with content which he is supposed to learn during the next five years.*

Another characteristic of such a test, reducing validity, is that the vocabulary difficulties of reading questions phrased for upper-grade children constitute an extraneous difficulty having nothing to do with testing health education outcomes for grade three or four. Since such a test purports to be testing health education outcomes rather than vocabulary, *the effect of such an extraneous factor in lowering validity is apparent.*

Furthermore, the intellectual concepts suited to the eighth grade pupil in such a "blanket" test may be too mature for the children of lower grades. *A test which presents intellectual concept puzzles to an immature child who is not supposed to know the answers to a majority of the questions cannot be judged as having a satisfactory level of validity.*

At least one additional invalidating characteristic of "blanket" tests deserves emphasis. *The pupil of a lower grade may be psychologically disturbed by being asked to read and answer test questions which are unreasonable for him.* It is impossible to be certain whether factors of unusual nervous stability, low mentality, or unusual courage might be responsible if

some pupils of lower grades are not emotionally disturbed by being instructed to answer questions most of which they are not supposed to know — some that they are unable to read with understanding.

Since health education tests do not purport to test nervous stability or audacity of children, one must conclude that "blanket" tests which include such elements are low in validity.

Factors reducing reliability. One factor causing "blanket" health education tests to rate low in reliability for pupils of a particular grade is that *an inadequate number of questions concerning health education outcomes expected in that grade are included.* Some well-known published tests for grades 3-8 inclusive provide sixty questions for six grades. If one assumes an equal allocation of questions to health education outcomes of each grade, then ten questions for each grade are furnished. It is an established principle that, other factors being equalized, the larger the number of appropriate questions in a test concerning a course the higher is the test's reliability. It is inconceivable that ten questions could provide an adequate sampling of outcome items hoped for in a grade. Hence such a blanket test must rate low in reliability.

Not only would vocabulary difficulties of "blanket" health education tests affect validity; they would also reduce reliability. The time spent by lower grade pupils in trying to read questions, some of which are couched in words suited to upper grade children only, would have varying effects upon different pupils in their attempts to complete the test within the time limit. A further complication is that these effects should increase, in a test planned for grades 3-8, as the test is administered from the seventh grade downward.

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Moreover the difficulty of *intellectual concepts to pupils who are not supposed to understand them, would reduce reliability.* There is no assurance that there would be any consistency on the part of pupils in regard to the amount of time which they would waste on unreasonable questions before they would proceed to other questions that relate to the outcomes of their respective grades.

Finally the psychological confusion into which pupils would be thrown in varying degrees by questions unrelated to their planned attainment would reduce reliability of results from "blanket" tests. It is a recognized principle of test administration that all disturbing elements that might affect nervous pupils should be minimized. Since nervous instability varies from pupil to pupil and from time to time with the same child, *the psychological shock of unreasonable* questions upon pupils of lower grades reduces reliability of "blanket" tests.

Conclusion

These are a few of several factors which should influence the progressive teacher to develop tests for his or her own class. All health education tests should be so constructed and administered as to search constantly for the truth.

* * * *

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EDITORIAL

We are living in an age of propaganda. We suffer from a flood of misstatements in advertising, in education, in politics, in the facts and status of government, and in national and world affairs. These are poured out upon us commercially; from uninformed, illogical or dishonest educators; and from dishonest governmental officials at all levels — municipal, county, state and national. Many of these statements are knowingly and willfully misleading, selfish, and often malicious prevarications. There is a good old single syllable Anglo-Saxon word for these.

In an effort to help our readers judge correctly the truth or falsity—and the intent of these outpourings—there is reprinted below an abstract from the Journal of School Health of February, 1937. C.H.K.

Propaganda vs. Education.—The following interesting comparison between education and propaganda seems to apply with peculiar aptness to health education.

Originally "propaganda" meant simply the propagation or dissemination of ideas, doctrines, principles. Today, in America at least, the term in contrast to "education" implies the dissemination of ideas for selfish or partisan reasons. For the sake of clarity in our own personal point of view, we make the following arbitrary contrasts: Abstract from Journal of School Health, February, 1937. p. 43.

EDUCATION	PROPAGANDA
1. A process of training in which people *actively acquire* knowledge or skill in some human ability.	1. A process in which doctrines or principles are *instilled into* the minds of people.
2. Teaches people to *think* for themselves.	2. Discourages or prevents thinking by substituting ready-made slogans.
3. Uses every means to discipline primitive desires.	3. Uses every means to arouse and stimulate primitive desires.
4. Trains people to weigh and consider problems before acting—reflective behavior.	4. Promotes instinctive and impulsive action—reflexive behavior.
5. Appeals to reason.	5. Appeals to emotion.
6. Encourages the development of individuality, personality, and self-expression.	6. Attempts to mould the thought of individuals into standard attitudes resulting in standard patterns of behavior.
7. Knowledge is acquired through self-reliant activity.	7. Knowledge is spoon-fed and passively received.
8. Counsels a skeptical attitude toward all problems.	8. Urges one particular choice.
9. Tends to develop extraverted personality.	9. Tends to develop selfish and introverted personality.
10. The benefits derived from education accrue not to the educator but to the "educatee."	10. The benefits derived from propaganda accrue not to the "propagandee" but to the propagandist.

The media through which education and propaganda reach the public are interchangeable — newspapers, magazines, motion pictures, radio, lectures, and even "outdoor advertising" are used by both. It behooves those concerned with publicizing health to be on guard lest the materials they use, the facts they disseminate, smack of "propaganda."

* * * * *

ABSTRACTS AND NOTES

Graduate Study in Health Education, Physical Education, and Recreation,—A Report of the National Conference on Graduate Study in Health Education, Physical Education, and Recreation, Pere Marquette State Park, Illinois, January, 1950. 31 pp. As a result of earlier meetings concerned with undergraduate study in health education, physical education, and recreation, an organizing committee was appointed which met in Boston in April, 1949, to consider the need for further study of the problem. This committee felt that there was immediate need for study of graduate preparation in the fields of health education, physical education, and recreation and proceeded to lay plans for such a meeting. These plans materialized when 36 delegates, eight consultants, and two Canadian observers met at the Pere Marquette State Park Lodge, Grafton, Illinois, in January, 1950.

Delegates to the Conference represented professional organizations. Consultants were invited on the basis of representation of selected organizations. The two Canadian observers repre-

sented The Canadian National Council on Physical Fitness and Welfare.

The report of the Conference covers the following main topics:

The Development of Graduate Study in School Health Education, Physical Education, and Recreation.
Advanced Professional Preparation in School Health Education.
Graduate Study in Physical Education.
Graduate Study in Recreation.
Suggestions for the Use of the Report.

A foreword reviews the background and the plan of organization of the Conference while two appendices list the sponsoring organizations and the delegates, and give a brief resume of the work schedule.

In view of the fact that the groups working in each of the three areas worked rather independently of each other, there is some variation in their reports. However, the general pattern or approach was to list the purposes of graduate study in the field; consider the graduate student admission, counselling, degree requirements, and placement; consider the graduate faculty qualifications and status, teaching or work load, and other considerations; consider the program of graduate studies, the curriculum, including expected outcomes, core areas of concentration, methods of instruction, field work, and curricula for the various degrees; and finally, to consider facilities. Evaluation received special consideration by one working group.

The over-all purposes of graduate work are listed as follows: (1) To produce better teachers, leaders, administrators, and creative scholars, (2) to stimulate and improve the quality of research and its consumption; and (3) to develop specialists who have preparation in particular lines of endeavor beyond the bachelor's degree. The Conference emphasizes the importance of an atmosphere of freedom conducive to the conduct of research and the development of thorough scholarship as requisites for advanced professional leadership.

The Conference recognizes the interrelationships of the three fields of health education, physical education, and recreation, but emphasizes the importance of differentiating clearly between them.

In reference to advanced professional preparation in school health education, the Conference recognizes the responsibility of the schools and colleges in producing an informed population capable of living effectively in a scientific world and notes the

likelihood of an increasing need for teachers equipped in health education, particularly those with graduate professional preparation. A note of caution is interjected into the report with the suggestion that it is not implied that a large number of institutions should attempt to give advanced preparation in school health education.

The criteria proposed for the program of graduate studies in school health education are broad, flexible, focused, scientific, unique, practical, functional, and challenging.

Five core areas or areas within which there should be opportunity for intensive experiences are suggested. These are: (1) scientific foundations of health education, (2) history, philosophy, and principles, (3) administration and supervision, (4) curriculum and teaching, and (5) evaluation and research. At the doctoral level the student is advised to direct his efforts toward developing a high level of competence in an area of health education such as teaching, administration, or research. The advanced student is also advised to have intensive experiences in cultural foundations in health education, literature of health education, and research. It is recognized that a period of supervised school-community field work is highly desirable.

The caliber of the graduate faculty is recognized as the most important single factor in achieving the purpose of graduate preparation in health education. There is mention of a need for recognized qualifications in research as well as in teaching. The report emphasizes the increasing importance of the doctoral degree to the faculty member directing programs, projects, or these at the higher levels of study.

The Conference points out the desirability of the use of resources found in schools of medicine, public health, graduate schools of education, and other related units by schools providing advanced professional preparation in school health education. If these are not available, comparable resources should be provided. Special emphasis is placed on the library, field laboratory facilities, and adequate physical facilities and equipment.

Without reviewing the phases of the report concerning graduate study in physical education, and graduate study in recreation, it is sufficient to point out that a similar approach was used in each instance.

Finally, in making suggestions for the use of the report the Conference emphasizes that the ultimate result will be influenced by the extent to which it is used in the total program of professional education.

The report of the Conference is available from The Athletic Institute, 209 South State Street, Chicago 4, Illinois, $1.00 per copy. The Conference expresses appreciation for the support of The Athletic Institute. J. Keogh Rash, Assistant Professor of Health and Safety School of Health, Physical Education and Recreation, Indiana University.

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Study in the Reduction of Absences from School of Children with Tinea Capitas,—Robert W. Culbert, Anna E. Ray Robinson and Max N. Lerner (New York City)—For a disease of such minor clinical manifestation, ringworm of the scalp (tinea capitis) presents a disproportionately major problem in school attendance. There is no physical disability; the child is not clinically ill; and often the actual lesions are not visible to the naked eye. Usually discovery of a case stops his school attendance for several months, sometimes years.

The treatment of the disease can be very costly and the prolonged absence of the child offers fertile ground for delinquency as well as interrupting his education.

As a solution to the attendance problem, some communities have provided ringworm classes in which the affected pupils are placed and remain until cured. The value of these classes in preventing the spread of the disease is open to question and they are costly to maintain. Some workers have regarded ringworm classes as impractical and have sought other control measures.

Regardless of the status of the ringworm class as a control device, it does permit children to attend school and, if rather intensive supervised treatment is given, a substantial reduction in absence due to exclusion from regular class might be effected.

This report is primarily concerned with reducing absences due to tinea capitis and not with the epidemiology or control of the disease. This present study concerns a survey of 22 schools in the Bedford Health district of Brookyn, N. Y., in which 149 cases were discovered among 19,131 pupils examined under the Wood's Light. The group was mostly Negro.

Through the joint efforts of the Board of Education and the Department of Health, the following program was put into action:

1—Three ringworm classes, so located that contact with regular class pupils was avoided, were set up in three schools.

2—Previously excluded children and their silblings under 15 years of age were brought to the selected schools by their parents. Histories were taken and the children re-examined.

3—When pupils gave a history of previous treatment, per-

mission was obtained to carry on the school treatment program.

4—Teachers were assigned to the classes, each of which included several grades.

The program ran for one school year and follow-up was continued for another year.

Treatment Procedure:

1—Cultures were taken of all.

2—Parents were instructed to shampoo the scalp daily before sending the child to school. Over week-ends and during holidays they applied an ointment, "Undenate," daily, following the shampoo.

3—A school physician visited each of the three classes daily. He examined each child under the Wood's Light and epilated some diseased hairs. He then applied "Undenate" ointment to the scalp.

A case was considered cured when found negative for fluorescent hairs on five successive daily examinations under the Wood's Light. He was then returned to his own school and class. There was subsequent follow-up on each case.

Results:

All of the 100 children had positive cultures and all but 5 were Negroes. About 77% of them were boys, ages 6 to 13 years. Ninety (90) of the 100 were under 12 years of age.

There were 43 mild cases, 26 moderately severe and 31 severe. Of the 100 treated, 53 were cured within the school year, mostly within six months, and 47 were still active at the end of the year. The latter group was directed to further treatment, and at the end of the two years 36 more were cured. It is of interest that of these 47, 28 refused x-ray epilation and 17 were cured subsequently by medication. Radiologic treatment admittedly is not the most desirable mode of treatment.

The average total duration of the cases in this series of 100 was from 8½ months for those cured within the school year to nearly 23 months for those finally cured by Roentgen epilation In all cured cases the major portion of the absence occurred prior to treatment in the special classes.

It is suggested that if a careful selection of cases were made, with emphasis on those of short duration and mild nature, the classroom treatment might not only prove more effective in cutting down absence due to exclusion but might materially reduce the number of children available to spread the disease by obtaining more rapid cures. With this in mind another ringworm class was set up in another district. The treatment procedure was

modified by reducing the number of physician's visits and treatments from five to two a week.

An analysis of the results showed the duration of the disease to be shorter and the number of cures larger. This suggests that classroom treatment can be brought within practical bounds and, with a fair selection of cases as regards duration, may be attended by a reasonable return on the investment.

Conclusions

Absences due to ringworm of the scalp can be materially reduced and cures effected by establishing a treatment program in special classes for children with tinea capitis.

By finding early cases and treatment regularly in the classroom, an effective control of tinea capitis may result.

More investigation into therapy leading to rapid cure short of Roentgen ray epilation is greatly needed. Abstracted by Wm. E. Ayling, M.D., School Health Director, Syracuse, New York.

Comments

Many communities solved the absentee problem by adopting the procedure of allowing children having tinea capitis to attend their regular classes if under satisfactory treatment in school or elsewhere and if each wore a washable cap over the involved areas.

One questions the need of using a doctor's time to treat cases in school when such treatment could very well be carried out by a nurse, under a doctor's direction, as has been done in my own city. It was necessary to exclude only a very few pupils because of lack of co-operation and these were made to comply with the regulations and soon returned to school. Wm. E. Ayling, M.D.

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"No Breakfast" Folly,—A comparison of the date relative to physiologic response, gathered from a group of ten men during a period of three weeks during which they were eating a "basic breakfast," with those collected from the same men during a period of three weeks when breakfast was omitted, justifies the following conclusons:

The tremor magnitude of nine of the ten subjects was significantly greater when breakfast was omitted than when the "basic breakfast" was eaten. In one case there was no change. This is evidence that the omission of breakfast increases tremor magnitude.

Eight of the ten subjects showed a significant decrease in maximum work output during the "no breakfast" period as com-

pared with the "basic breakfast" period. Two of the subjects did less work during the "no breakfast" period, but the differences were not highly significant. Thus it can be concluded that the ommission of breakfast causes maximum work output to decrease.

Three of the ten subjects showed a significant increase in choice reaction time during the "no breakfast" period, two showed a significant decrease, and five showed no highly significant change. Where the omission of breakfast altered reaction time significantly, the majority of the subjects were slower during the "'no breakfast" period.

There were no significant changes in body weight when the subjects changed from the "basic breakfast" to "no breakfast." Similarly, there was no significant change in body weight when the subjects changed from "no breakfast" to "basic breakfast."

The reactions of men to the omission of breakfast appeared to be more pronounced than in the case with women. This is suggested by the fact that they complained more about being hungry, and in addition, showed rather consistent fatigue reactions following bouts of strenuous exercise. The reactions which most experienced irregularly and two consistently were dizziness, nausea, and vomiting. From Journ. Am. Dietetic Assn., May, 1950. (1) Tuttle, W. W. Wilson, M., and Daum, K.; The effect of altered breakfast habits on physiologic response. J. Applied Physiol. 1:545, 1949.

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BCG Vaccine Improved,—Last July the council on the management and treatment of chest diseases of the American College of Chest Physicians at its meeting in Chicago, recommended that the use of BCG vaccine for tuberculosis control be limited to investigation. The Council reported that "There is no evidence that meets strict scientific requirements demonstrating that BCG affects the control of tuberculosis, despite the very suggestive results of a few studies."

Great confusion exists. The Council said there is no general agreement among investigators on the preparation of vaccine, a method of vaccination, how immunity can be measured and how long immunity lasts.

Until these things are determined, "the methods which have proved effective in tuberculosis control should be increasingly applied to all segments of the population."

We, in the United States, have had the most successful program for the control of tuberculosis that the world has ever experienced. It is unfortunate to weaken it, and it is being weakened in some areas, by over-enthusiastic persons, by advocating and using various half assimilated short cuts. CHK.

* Last paragraph is abstractor's own statement and opinion.

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BCG Vaccination: Should It Be Accepted?—Todd reviews some aspects of this problem and lists considerations which must

be kept in mind. BCG vaccine has been used on humans since 1921, yet we do not know whether it is effective. The theory that a positive tuberculin reaction predisposes to reinfection is not compatible with a belief in BCG vaccination. The theory that the development of a positive tuberculin reaction indicates some degree of resistance to reinfection does explain the belief that BCG vaccination results in increased resistance. The tuberculin reaction is a valuable aid in the diagnosis of tuberculosis, an aid which is lost when the vaccinated person is changed from a nonreactor to a reactor to tuberculin. A number of bacteriological and immunological problems remain to be solved before many of the questions regarding BCG vaccination can be answered. These problems include standardization and stabilization of the anti-genic potency of the vaccine and the response of the subject in terms of protective immunity. The Trudeau Society considers BCG vaccine, properly prepared and administered, to be harmless, but points out that further studies are needed before the degree of protection can be predicted. Approved general control measures must be continued until further proof of efficacy of BCG vaccination is available —Journ. A.M.A., Aug. 5, 1950, from Journal Lancet, Minneapolis.

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Pain Over Tibia in Athletes.—To the Editor:—Track men or runners sometimes complain of tenderness and pain over the midportion of the anterior aspect of the tibia. This comes on often at the start of a run, then lets up somewhat only to return after the run. The leg does not get stiff, but the pain is somewhat sufficient to cause insomnia. Coaches refer to this ailment as shin splint. What is the cause and suggested treatment?

Harold I. Grice, M.D., Schnectady, N. Y.

Answer:—Shin splints, the bane of distance runners and hurdlers, are usually caused by pounding too hard on the track or running on hard surfaces. The ailment, most frequent during early season training, results in complaints of diffuse, disabling pain along the lateral or medial aspect of the shin bone. The cramplike discomfort most commonly centers in the tibialis anticus but may also involve the tibialis posticus, extensor digitorum longus and the extensor hallucis longus. The exact nature of the process is not clear, but the disability develops too rapidly and responds to rest and treatment too promptly to be caused by tearing away of some tendon fibers from their origin. Since periostitis would be far more disabling and persistent, the condition may be due to moderate irritation and fatigue of the muscles. The theory that strain of the arch of the foot is the underlying cause

of shin splints deserves attention, with strapping to support the arch a good precautionary procedure in athletes prone to the disability. Recommendations as to best preventive measures suggest that running on the turf in tennis shoes in early season workouts may be effective. Insistence on thorough warm-up, good general conditioning and special care in cold temperatures may also be helpful. Treatments consists of complete rest for a few days with alternate hot and cold immersions. The whirlpool bath or baking followed by gentle massage including effleurage and friction are recommended. When training is resumed, ankle strapping carried high up the leg will aid in resting the tibialis. Workouts should be carefully graduated until the muscles are properly conditioned for severe use. Journ. A.M.A., Sept. 23, 1950. p. 359.

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Disinfecting the Air,—To the Editor:—In a recent answer to a question about disinfecting the air, there was no mention of a procedure which is being advertised highly and with a flood of literature by mail. Is the "Glycolaire Purifier" or any of the other vaporizers that use some form of glycol of any significant use?

G. T. Blydenburgh, M.D., Delaware, Ohio.

Answer:—Under experimental conditions the presence of certain glycol vapors in living quarters, dormitories and hospitals can reduce the incidence of air-borne diseases and cross infections, but persons who spend only part of their time in such an atmosphere cannot expect it to confer immunity against exposure in other places. The general, constant use of disinfectant vapors in schools, barracks and specialized industrial environments is not justified at the present time: neither is there justification for indiscriminate use of such vapors in homes, offices or places where persons congregate freely. Journ. A.M.A., Sept. 9, 1950. p. 211.

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Freezing to Destroy Trichinae,—To the Editor:—Several of my patients stated that they would like to eat bacon or ham uncooked, if it could be done without danger from trichinosis. I understand that deep-freezing will destroy the larvae. Please advise temperature and time necessary to make pork safe for consumption, without cooking, by storing the pork in a deep freezer.

M.D., Wisconsin.

Answer:—The prescribed treatment of pork and products containing pork to destroy trichinae (Regulations Governing Meat Inspection of the U. S. Department of Agriculture, ed. 1947; Section 18.10 (c) (2)) includes subjection of the product to the following freezing temperatures and times:

	Time	
Temperature	*Group 1*	*Group 2*
+ 5 F	20 days	30 days
— 10 F	10 days	20 days
— 20 F	6 days	12 days

Group one comprises products not exceeding 6 inches (15.24 cm.) in thickness or stored in racks with the layers not exceeding 27 inches (68.6 cm.) in thickness. All parts of the product must be subjected continuously to temperatures not higher than one of those specified and for the time specified or longer.

If there is any doubt at all about the length of time and the temperatures at which pork has been stored it should be thoroughly cooked before eating. Journ. A.M.A., Sept. 9, 1950, p. 211.

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Perishable Hams,—The meat packing industry, in response to popular demand, experimented with various curing methods until they produced two types of mild, "tenderized" ham—the "cook-before-eating" variety and the smoked "ready-to-eat" kind. These two ham products, while they possess the same appearance of so-called "long cure" ham, are radically different meats.

"Cook-before-eating" and "ready-to-eat" hams are mild and tender because the amount of salt used in curing these products has been sharply reduced. In addition to a reduction of the salt content, the curing time has been shortened, producing a tender but a *delicate* product.

It is important, therefore, that housewives, cooks, meat packing employees, distributors, and retailers understand the proper handling of these meat products.

"Cook-before-eating" and "ready-to-eat" hams are *perishable.* They must be protected from spoilage. They are not designed to withstand mishandling, and therefore, they must be kept under refrigeration at every stage of distribution.

The American Meat Institute lists the following recommendations for the proper handling of these meat products by the distributor and consumer:

1. Like cooked meat, the new type cook-before-eating and ready-to-eat products cannot be stored safely at temperatures above 50°F.

2. Prepared dishes or sandwiches made from these products are perishable and must be kept under refrigeration to avoid spoilage.

3. Every consumer should give these meat products the same care in handling and protection against contamination accorded to the products in the processing plant.

4. Every distributor and every retailer should display or store these products in refrigerated space only.

5. Delivery to retail stores should be made in refrigerated equipment.

6. Consumers should place the product under refrigeration immediately upon delivery.

7. Cook-before-eating smoked meat items must be cooked before serving and must not be confused with the ready-to-eat type. Always ask the retailer about the products.

There are no shortcuts in correctly handling any food product. To assure quality and wholesomeness and to avoid the occurrence of food poisoning, the strictest sanitation should be maintained by food handlers. From Illinois Health Messenger, Sept. 15, 1950. p. 71.

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REVIEWS

Conference on the Undergraduate Professional Preparation of Students Majoring in Health Education by H. F. Kilander, Washington, D. C., The Office of Education, Federal Security Agency, 1950. 84 pp. Single copies free upon request from Office of Education.

A report of the conference held November 28-December 2, 1949. It includes recommendations concerning the curricula as regards general education, professional teacher education, and specialization in the field of health education.

The appendix contains a list of the thirty-eight institutions offering an undergraduate major in health education, the curriculum of each institution, and an analysis of their health education curricula. H. F. Kilander.

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Priorities in Health Services for Children of School Age.— Recommendations by a Special Committee Appointed by the Federal Security Agency, issued by the Children's Bureau, Office of Education, Public Health Service, Federal Security Agency, Washington 25, D. C.

This booklet is the first report to come from the joint planning of the new Committee on School Health, composed of two representatives each from the U. S. Public Health Service, the Children's Bureau and the Office of Education. This Committee called together nine distinguished consultants, who drew their own conclusions through discussion.

The report outlines the "Basic Premises of Discussion" and considers *priorities* according to four categories of resources available. The report is significant because of the agreement reached on priorities, what is important and what should be considered in planning an over-all program. A table directs attention to ten factors, which certainly should be considered for determining the relative priority of eight common school problems. While the experienced administrator may not find the scoring scheme particularly useful in planning his program, the table is valuable in interpreting to the reader the way the Committee considered the various criteria in arriving at decisions on priority, and it might serve a useful purpose to stimulate thinking about priorities in a School Health Council.

Of course, all of us who serve school age children make daily decisions which lead to priorities in service. This preliminary exploration indicates a few considerations that should influence priority, and it should lead to further study to improve administrative policy. Harold H. Mitchell, M.D.

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The Theory of Camping,—Frank L. Irwin, Ed.D. A. S. Barnes & Co., pp. 178. Price $2.50.

After presenting a chapter on the objectives and history of organized camping in the United States, and a sketch of education in the twentieth century particularly as related to organized camping, the text presents material on understanding the camper, group life in camp, the camp program, the counselor, camp administration, administrative relationships and day camping. It concludes with a chapter on the public school camp. Brief enough to be usable, and with its chapters supported by discussion questions and reading references, this is a valuable text.—*C. H. K.*

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"Foundations of Community Health Education," Robert G. Paterson, McGraw-Hill Book Co., Inc., 1950, pp. 288. Price $3.75.

After brief discussion of the General Objectives and Meaning of Public Health, the author traces other factors in the historical development of Public Health.

Part II, under the title of Modern Public Health, is really a history. There is little on the procedures or materials of health instruction.—*C. H. K.*

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MEETING

American Association for Health, Physical Education and Recreation, at Detroit, Michigan, April 14-20, 1951.